

CLAIMS

1. A data recording apparatus comprising:
 - inputting means of receiving a data;
 - data converting means of converting the data which is received by said inputting means, into a recording signal;
 - recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium;
 - data rate detecting means of detecting a rate of the data which is received by said inputting means; and
 - controlling means of controlling a recording rate of said recording means by using the rate which is detected by said data rate detecting means.
2. A data recording apparatus according to claim 1, wherein said apparatus further comprises special-data producing means of, from the data which is received by said inputting means, producing at least one or more kinds of special-reproduction data,
 - said recording means records also the special-reproduction data which is produced by said special-data producing means, and
 - said controlling means controls the recording rate in consideration of also an amount of the special-reproduction data which is produced by said special-data producing means.

3. A data recording apparatus comprising:

 inputting means of receiving a data;

 data converting means of converting the data which is received by said inputting means, into a recording signal;

 recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium;

 data rate detecting means of detecting a rate of the data which is received by said inputting means;

 rate information outputting means of outputting information of the rate which is detected by said data rate detecting means; and

 controlling means of controlling a recording rate of said recording means on the basis of instructions from a user.

4. A data recording apparatus according to claim 3, wherein said apparatus further comprises special-data producing means of, from the data which is received by said inputting means, producing at least one or more kinds of special-reproduction data,

 said recording means records also the special-reproduction data which is produced by said special-data producing means, on said recording medium, and

 said rate information outputting means outputs also

information of an amount of the special-reproduction data which is produced by said special-data producing means.

5. A data recording apparatus according to claim 2 or 4, wherein there are plural kinds of special-reproduction data, and

said apparatus further comprises switching means of switching the kinds of special-reproduction data which are produced by said special-data producing means.

6. A data recording apparatus according to any one of claims 1 to 5, wherein the data which is received by said inputting means is a bit stream consisting of a packet signal string configured by a data of a fixed length, and

said data rate detecting means counts a number of the packets constituting the bit stream at intervals of a predetermined fixed time period, thereby detecting the rate.

7. A data recording apparatus according to claim 6, wherein the bit stream is a bit stream configured by a transport packet of an MPEG system of MPEG2 or higher, or a bit stream of a DSS system.

8. A data recording apparatus according to claim 6 or 7, wherein the fixed time period is a time corresponding to an integer multiple of a minimum record unit time of said data recording apparatus.

9. A data recording apparatus according to any one

of claims 1, 2, 5, 6, 7, and 8, wherein said controlling means compares a predetermined reference value with the rate which is detected by said data rate detecting means, to control the recording rate of said recording means.

10. A data recording apparatus according to claim 9, wherein the predetermined reference value is a value which is determined in accordance with a rate of a head data of the recording signal which is to be recorded by said recording means, in each recording time period.

11. A data recording apparatus according to claim 9, wherein there are at least two kinds of recording modes in which said recording means records the recording signal, and at intervals of a predetermined time period, when a rate of a data corresponding to the recording signal which is to be recorded by said recording means exceeds even once the predetermined reference value, said controlling means controls the recording rate of said recording means so that all recording signals during the predetermined time period are recorded in a recording mode in which a data of a rate exceeding the predetermined reference value can be recorded.

12. A data recording apparatus according to claim 9, wherein there are at least two kinds of recording modes in which said recording means records the recording signal, and at intervals of a predetermined time period, until

a rate of a data corresponding to the recording signal which is to be recorded by said recording means exceeds the predetermined reference value, said controlling means controls the recording rate of said recording means so that the recording signal is recorded in a recording mode corresponding to a rate which does not exceed the predetermined reference value, and, after the rate of the data corresponding to the recording signal which is to be recorded by said recording means exceeds the predetermined reference value, controls the recording rate of said recording means so that the recording signal is recorded in a recording mode corresponding to a higher rate which exceeds the predetermined reference value.

13. A data recording apparatus according to claim 12, wherein the predetermined time period means a continuous recording time period, or a recording time period of bit streams of same contents.

14. A data recording apparatus comprising:

- inputting means of receiving a data;
- data converting means of converting the data which is received by said inputting means, into a recording signal;
- recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium; and
- controlling means of fixing a recording rate of said

recording means to a predetermined rate in accordance with a broadcasting channel corresponding to the recording signal which is to be recorded by said recording means.

15. A data recording apparatus according to claim 14, wherein the data which is received by said inputting means is a bit stream configured by a transport packet of an MPEG system of MPEG2 or higher, or a bit stream of a DSS system.

16. A data recording apparatus according to any one of claims 1 to 15, wherein said recording means records also the recording rate on the recording medium.

17. A data reproducing apparatus comprising at least reproducing means of, by using the recording rate which is recorded on the recording medium by a data recording apparatus according to claim 16, reproducing the recording signal which is recorded on the recording medium.

18. A data recording method comprising:

- an inputting step of receiving a data;
- a converting step of converting the data which is received in said inputting step, into a recording signal;
- a recording step of recording the recording signal which is converted in said converting step, on a predetermined recording medium;
- a rate detecting step of detecting a rate of the data which is received in said inputting step; and
- a controlling step of controlling a recording rate

in said recording step by using the rate which is detected in said rate detecting step.

19. A data recording method according to claim 18, wherein said method further comprises a special-data producing step of, from the data which is received in said inputting step, producing at least one or more kinds of special-reproduction data,

in said recording step, also the special-reproduction data which is produced in said special-data producing step is recorded on said recording medium, and

in said controlling step, the recording rate is controlled in consideration of also an amount of the special-reproduction data which is produced in said special-data producing step.

20. A data recording method comprising:

an inputting step of receiving a data;

a converting step of converting the data which is received in said inputting step, into a recording signal;

a recording step of recording the recording signal which is converted in said converting step, on a predetermined recording medium;

a rate detecting step of detecting a rate of the data which is received in said inputting step;

a rate information outputting step of outputting information of the rate which is detected in said rate

detecting step; and

a controlling step of controlling a recording rate in said recording step on the basis of instructions from a user.

21. A data recording method according to claim 20, wherein said method further comprises a special-data producing step of, from the data which is received in said inputting step, producing at least one or more kinds of special-reproduction data,

in said recording step, also the special-reproduction data which is produced in said special-data producing step is recorded on said recording medium, and

in said rate information outputting step, also information of an amount of the special-reproduction data which is produced in said special-data producing step is output.

22. A data recording method according to any one of claims 18 to 21, wherein the data which is received in said inputting step is a bit stream consisting of a packet signal string configured by a data of a fixed length, and

in said rate detecting step, the rate is detected by counting a number of the packets constituting the bit stream at intervals of a predetermined fixed time period.

23. A data recording method comprising:

an inputting step of receiving a data;

a converting step of converting the data which is received in said inputting step, into a recording signal;

a recording step of recording the recording signal which is converted in said converting step, on a predetermined recording medium; and

a controlling step of fixing a recording rate in said recording step to a predetermined rate in accordance with a broadcasting channel corresponding to the recording signal which is recorded in said recording step.

24. A data recording method according to claim 23, wherein the data which is received in said inputting step is a bit stream configured by a transport packet of an MPEG system of MPEG2 or higher, or a bit stream of a DSS system.

25. A data recording method according to any one of claims 18 to 24, wherein, in said recording step, also the recording rate is recorded on the recording medium.

26. A data reproducing method comprising at least a reproducing step of, by using the recording rate which is recorded on the recording medium by a data recording method according to claim 25, reproducing the recording signal which is recorded on the recording medium.

27. A program for causing a computer to function as a whole or a part of, in a data recording apparatus according to claim 1:

inputting means of receiving a data;

data converting means of converting the data which is received by said inputting means, into a recording signal; recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium;

data rate detecting means of detecting a rate of the data which is received by said inputting means; and

controlling means of controlling a recording rate of said recording means by using the rate which is detected by said data rate detecting means.

28. A program for causing a computer to function as a whole or a part of, in a data recording apparatus according to claim 3:

inputting means of receiving a data; data converting means of converting the data which is received by said inputting means, into a recording signal; recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium;

data rate detecting means of detecting a rate of the data which is received by said inputting means;

rate information outputting means of outputting information of the rate which is detected by said data rate detecting means; and

controlling means of controlling a recording rate of

said recording means on the basis of instructions from a user.

29. A program for causing a computer to function as a whole or a part of, in a data recording apparatus according to claim 14:

 inputting means of receiving a data;

 data converting means of converting the data which is received by said inputting means, into a recording signal;

 recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium; and

 controlling means of fixing a recording rate of said recording means to a predetermined rate in accordance with a broadcasting channel corresponding to the recording signal which is to be recorded by said recording means.

30. A medium which carries a program for causing a computer to function as a whole or a part of, in a data recording apparatus according to claim 1:

 inputting means of receiving a data;

 data converting means of converting the data which is received by said inputting means, into a recording signal;

 recording means of recording the recording signal which is converted by said data converting means, on a predetermined recording medium;

 data rate detecting means of detecting a rate of the

data which is received by said inputting means; and
controlling means of controlling a recording rate of
said recording means by using the rate which is detected
by said data rate detecting means, said medium being
processable by a computer.

31. A medium which carries a program for causing a computer
to function as a whole or a part of, in a data recording
apparatus according to claim 3:

 inputting means of receiving a data;
 data converting means of converting the data which
 is received by said inputting means, into a recording signal;
 recording means of recording the recording signal which
 is converted by said data converting means, on a
 predetermined recording medium;
 data rate detecting means of detecting a rate of the
 data which is received by said inputting means;
 rate information outputting means of outputting
 information of the rate which is detected by said data rate
 detecting means; and
 controlling means of controlling a recording rate of
 said recording means on the basis of instructions from a
 user, said medium being processable by a computer.

32. A medium which carries a program for causing a computer
to function as a whole or a part of, in a data recording
apparatus according to claim 14:

inputting means of receiving a data;
data converting means of converting the data which
is received by said inputting means, into a recording signal;
recording means of recording the recording signal which
is converted by said data converting means, on a
predetermined recording medium; and
controlling means of fixing a recording rate of said
recording means to a predetermined rate in accordance with
a broadcasting channel corresponding to the recording
signal which is to be recorded by said recording means,
said medium being processable by a computer.